



# State of the Sector: Healthcare

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**National Personal Protective Technology Laboratory**  
**Pittsburgh, PA**

**Personal Protective Technology Stakeholder Meeting**  
**March 29, 2011**



Workplace  
Safety and Health



**NPPTL** *Research to Practice<sup>1</sup>  
through Partnerships*

# Presentation Outline

- **Sector defining documents.**
- **PPT Projects NORA-identified research areas.**
- **Today's events – Healthcare Track**

# NORA Sector: Healthcare and Social Assistance



**NIOSH Publication No. 2009-138: State of the Sector |  
Healthcare and Social Assistance  
Identification of Research Opportunities for the Next  
Decade of NORA  
Executive Summary [6/2009]**  
(<http://www.cdc.gov/niosh/docs/2009-138/>)



**NIOSH Publication No. 2009-139: State of the Sector |  
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# Healthcare Workforce

- **Fastest growing industry sector**
- **About 17 million workers (11% of the U.S. workforce)**
- **Includes 12 of top 20 fastest growing occupations**

Highly diverse workforce

Highest percentage and number of females

Highest percentage of African-Americans

Highest in total number of Asians

- **2<sup>nd</sup> with over 30% of all lost-time nonfatal occupational illness and injuries**
  - Nursing aides, orderlies and attendants, and registered nurses
- **2/3 occupationally-associated personal assaults and violent acts**

# Workplace Health and Safety Hazards

- **Exposures to infectious, chemical, and physical agents**
  - Exposures to hazardous drugs
  - Sharps injuries
  - Unknown exposures and risks in caring for those with emerging infectious diseases or the emerging threat of bioterrorism
- **Stress (psychological hazards) of dealing with the highly charged HCSA environment**
- **Work organization (e.g. long/unpredictable hours, rotating shifts, under-staffing)**
- **Risks associated with ergonomic hazards (e.g. patient lifting and repetitive tasks)**
- **Workplace violence**

# Safety Culture and Safety Climate

- **Inaccurate stereotype of clean and safe workplace**
- **Patient care issues supersede the personal safety and health of workers**
- **Wide range of workplace health and safety hazards**

## Opportunities for Improvement

- **Link worker safety with patient care**
- **Patients and providers share common environment**
- **Synergies of patient and provider protections**

# Research Opportunities

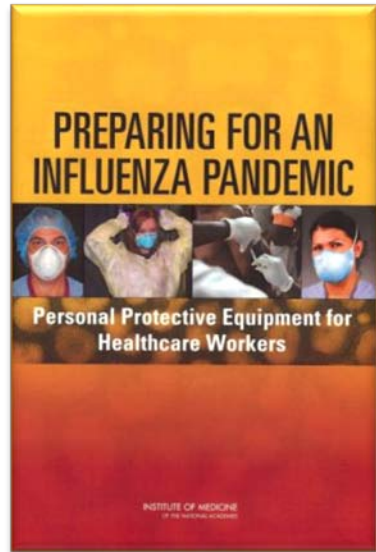
## Cross-Cutting

- **Safety Culture and Safety Climate**
- **Business Case for Managing Safety and Health**
- **Public Health Emergencies: Mass Casualty Events**
- **Prevention through Design**
- **Environmental Concerns – Events and Impacts**
- **Nursing and Other Professional Worker Shortages**
- **Occupational Health Surveillance**

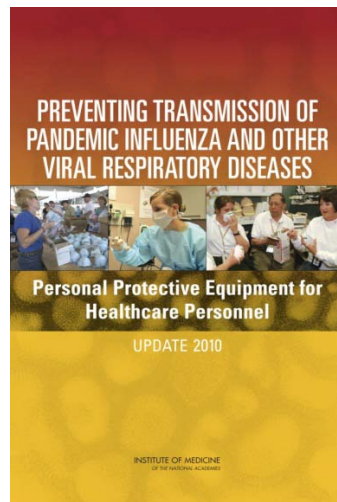
## Specific Health and Safety Problems

- **Work-related Musculoskeletal Disorders**
- **Violence**
- **Slip, Trip, and Fall Incidents**
- **Hazardous Drugs**
- **Chemical Hazards**
- **Sharps Injuries and Bloodborne Pathogens**
- **Infectious Diseases**

# National Academies Evaluations provide high level scientific input to PPT Program



- Understanding influenza transmission
- Commit to worker safety and use of PPE
- Innovate and strengthen PPE design
- **Personal Protective Equipment (PPE) for Healthcare Workers Action Plan, NIOSH Docket Number 0129**
- [\(<http://www.cdc.gov/niosh/docket/archive/docket129.html>\)](http://www.cdc.gov/niosh/docket/archive/docket129.html)

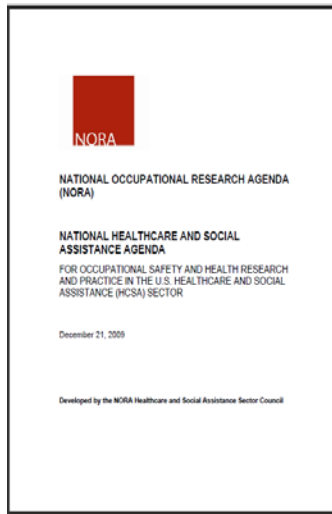


- **Support original recommendations**
  - Effective interventions
  - Culture of safety
  - Improve fit

[\(<http://www.cdc.gov/niosh/npptl/nationalacad.html>\)](http://www.cdc.gov/niosh/npptl/nationalacad.html)



# Healthcare and Social Assistance Research Agenda



- **Developed by HCSA Sector Council**
- **December 2009**
- **5 Strategic goals**

<http://www.cdc.gov/niosh/nora/comment/agendas/hlthcaresocassist/pdfs/HlthcareSocAssistDec2009.pdf>

# Strategic Goals

- **Strategic Goal 1: Promote safe and healthy workplaces and optimize safety culture in healthcare organizations.**  
(9 Intermediate Goals)
- **Strategic Goal 2: Reduce the incidence and severity of musculoskeletal disorders among all HCSA workers.**  
(5 Intermediate Goals)
- **Strategic Goal 3: Reduce or eliminate exposures and adverse health effects caused by hazardous drugs and other chemicals.**  
(3 Intermediate Goals)
- **Strategic Goal 4: Reduce sharps injuries and their impacts among all healthcare personnel.**  
(7 Intermediate Goals)
- **Strategic Goal 5: STOP transmission of infectious diseases in HCSA settings among workers, patients and visitors.**  
(12 Intermediate Goals)

# **Selected FY 09 and FY10 PPT Program Healthcare Worker Related Projects**

<http://www.cdc.gov/niosh/programs/ppt/projects.html>

- **Total Inward Leakage (TIL) / Half Mask and Filtering Facepiece Respirators**
- **Fit Test Pilot Studies**
- **PPE Surveillance Intervention Studies**
- **Penetration of Nanoparticles through NIOSH Approved Respirator Filters**
- **Frequency of Fit Testing**
- **Reusability of Filtering Facepiece Respirators**
- **Metabolic Evaluation of N95 Respirator Use with Surgical Masks**
- **Pan Flu - HCW: Surveillance / Demonstration and Sentinel Surveillance System of PPE/PPT Usage in US Healthcare Workers**
- **Evaluation of Respirator Use for H1N1 Influenza Among Healthcare Workers (REACH)**
- **Aerosol Generation by Cough (HELD/NPPTL)**
- **Project BREATHE- Better Respirator Equipment using Advanced Technology for Healthcare Employees (NPPTL/ VHA)**

# Healthcare Posters

#	Name	Poster Topic
9	Benson, Stacey NIOSH NPPTL	Aromatic Hydrocarbon Adsorption Characteristics of Disposable Filtering Facepiece Respirators that Contain Activated Charcoal
10	Oke, Charles NIOSH NPPTL	Development of a National Demonstration and Sentinel Surveillance System for PPE Usage by Healthcare Workers (HCWs) in the US.
11	Yarbrough, Mary Vanderbilt University	Protecting healthcare workers from an airborne respiratory event: Implementing a sentinel surveillance system to monitor PPE usage in the United States healthcare system
12	Durand, Kate California Department of Public Health	Respirator Intervention and Evaluation (REACH I&E)
13	Bergman, Michael NIOSH NPPTL	Impact of Multiple Consecutive Donnings on Filtering Facepiece Respirator Fit
14	Roberge, Raymond NIOSH NPPTL	The Impact of a Surgical Mask and Filtering Facepiece Respirators on Human Thermoregulation
15	King, William NIOSH NPPTL	Ultrasound for the Assessment of Respirator Fit
16	Phalen, Robert CSUSB	Tensile Properties and Integrity of Cleanroom and Low-modulus Nitrile Exam Glove Formulations
17	Kilinc-Balci, F. Selcen NIOSH NPPTL	Assessment of Research Gaps in Healthcare Worker PPE
18	Zhuang, Ziqing NIOSH NPPTL	Laboratory Study to Assess Causative Factors Affecting Temporal Changes in Filtering-Facepiece Respirator Fit: Part II – One Year Assessment of Fit Changes
19	Szalajda, Jon NIOSH NPPTL	Respirator and surgical mask efficacy for cough aerosols
20	Que Hee, Shane S. UCLA	Glove Permeation with a Dextrous Robot Hand System

# Healthcare Breakout Session 1

- **Breakout Session 1: 9:15 – 10:45**      **Location: Allegheny Ballroom**
- **Subject 1: Healthcare Sector PPE Research Needs: A Work Environment Perspective**
- **Presenter: Dr. Barbara Sattler – University of Maryland**
- **Topics:**
  - Review of body burden studies of healthcare professionals and “Nurses Survey” results
  - Review of asthmagens and asthma triggers commonly found in healthcare
  - Disinfection and sterilization processes-related exposures / the need for respiratory protection
  - High risk areas of exposure where applying the “hierarchy of controls” could reduce risk
  - Suggested research
- **Subject 2: Update and Overview of NPPTL Healthcare Worker Personal Protective Equipment**
- **Presenter: Ron Shaffer**
- **Topics:**
  - Rationale for selected NIOSH research projects related to PPE Healthcare workers
  - Current NIOSH projects and recognize potential outcomes to the workplace

# Healthcare Breakout Session 2

- **Breakout Session 2: 3:00 – 4:30**      **Location: Allegheny Ballroom**
- **Subject 1: Masks & Respiratory Protection for Influenza**
- **Presenter: Dr. Howard Cohen**
- **Topics:**
  - IOM Studies on Masks & Respirators for Influenza (2006-2009)
  - What we know and what we don't know
  - Clinical studies: Strengths & Weaknesses
- **Subject 2: Overview of healthcare worker IOM Report**
- **Presenter: William H. Kojola**
- **Topics:**
  - IOM Report – Preventing Transmission of Pandemic Influenza and Other Viral Respiratory Diseases: Personal Protective Equipment for Healthcare Personnel. Update 2010

# Quality Partnerships Enhance Worker Safety & Health



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